

REMARKS/ARGUMENTS

Claims 1-55 were pending in the present application. Claim 50 is allowed. The present response amends claims 1, 13, 28, 43-44, 46, and 51-53; and cancels claim 42; leaving pending in the application claims 1-41 and 42-55. Reconsideration of the rejected claims is respectfully requested.

I. Examiner Interview

A telephone interview was conducted with Examiner Rosenberger at 2:00 PM EST on June 2, 2004. During the interview, differences between the present invention and the cited references were discussed. No agreement was reached regarding the pending claims, though Applicants appreciate the Examiner's helpful suggestions with regard to clarifying and/or distinguishing the pending claims.

II. Allowed Claim

Claim 50 is allowed.

III. Rejection under 35 U.S.C. §112

Claims 42, 51, and 52 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 42 has been canceled. Claims 51 and 52 have been amended to properly depend from claim 50, and have otherwise been amended for purposes of clarity. As such, it is respectfully submitted that claims 51 and 52 are sufficiently definite and it is requested that the rejection be withdrawn.

IV. Rejection under 35 U.S.C. §103

Claims 1-49 and 51-55 are rejected under 35 U.S.C. §103(a) as being obvious over *Neumann* (US 4,824,248) and *Larsen* (US 4,277,177).

Claim 1 requires an arrangement for use in an optical metrology instrument, defined by:

an optical system connected to a support, the support including a faceplate having an exterior surface that is substantially planar and faces the sample, said faceplate further including at least one aperture for transmitting the incident and reflected light between the optical system and the measurement position;

a stage arranged such that the sample surface is substantially parallel to the faceplate and configured such that multiple locations on the sample surface can be sequentially located at the measurement position, the separation between the faceplate and the sample being arranged such that during measurement the volume bounded by the faceplate and the sample surface approximates a thin plate; and

an apparatus for maintaining a purge-gas flow within said bounded volume, comprising:

a source of purge-gas; and

means for introducing said purge-gas at an injection point within the bounded volume and arranged so that a purge gas flow directed toward the measurement position travels substantially radially away from the measurement position and is exhausted at a periphery of the sample in order to purge a measurement region including the measurement position where the light is reflected.

(*emphasis added*). Such limitations are not rendered obvious by the combination of *Neumann* and *Larsen*.

Larsen teaches directing a flow of air into a housing then permitting the air to leave the housing “at a constant pressure and to impinge the sheet (14) at a direction substantially perpendicular to the sheet,” the air flowing from a plurality of air outlets in an annular member of the housing so as to hold the housing “at a constant distance from the sheet” (Abstract; col. 1, lines 29-44; col. 2, lines 16-26 and lines 49-55). *Larsen* does not teach or suggest directing a flow of purge gas toward the measurement position that then travels radially away from the measurement position in order to purge the measurement region, as *Larsen* instead directs air at a plurality of locations about the measurement position such that the air then can flow toward the measurement position (see for example the air flow arrows of Fig. 2), which could cause contamination to be pushed into the measurement position. As such, *Larsen* cannot render claim 1 obvious.

Neumann does not make up for the deficiencies in *Larsen* with respect to claim 1. *Neumann* teaches introducing a fluid stream into a sensor cavity “such that the fluid follows a helical path of travel therethrough and exits through the open bottom so that a high pressure region is created proximate the wall of the cavity and a low pressure region is created proximate the center of the cavity” such that the sensor maintains a “fixed, spaced apart and angular relationship with a surface disposed proximate the bottom of the cavity” (col. 2, lines 50-62; col. 3, lines 57-68; col. 4, lines 1-37). *Neumann* does not teach or suggest directing a flow of purge gas toward a measurement position that then travels radially away from the measurement position in order to purge the measurement region. In fact, the low pressure region created in the

central portion of the sensor cavity in *Neumann* could actually draw contamination toward the measurement position. As such, *Neumann* cannot render claim 1 obvious, either alone or in combination with *Larsen*.

Independent claims 13, 28, 43, 44, 46, and 53 recite similar limitations to purging a measurement region including a measurement position by directing a flow of purge gas toward the measurement position that then flows substantially radially away from the measurement position and is exhausted at a periphery of the sample. As discussed above with respect to claim 1, such limitations are not rendered obvious by the combination of *Larsen* and *Neumann*. Claims 13, 28, 43, 44, 46, and 53, and the corresponding dependent claims, therefore cannot be rendered obvious by *Larsen* and *Neumann*, either alone or in combination. Applicants therefore respectfully request that the rejection with respect to claims 1-49 and 51-55 be withdrawn.

V. Amendment to the Claims

Unless otherwise specified, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the specification and do not add new matter to the specification.

VI. Conclusion


In view of the above, it is respectfully submitted that the application is now in condition for allowance. Reconsideration of the pending claims and a notice of allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-1703, under Order No. TWI-13510. **A duplicate copy of the transmittal cover sheet attached to this Response to Office Action Mailed April 9, 2004, is provided herewith.**

Respectfully submitted,

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